FY 2006 Self-Assessment Plan

For

NSLS Department

December 31, 2005
Revised: May 9, 2006

Prepared by: **Signatures on original document** Date: 5/9/2006

W.R. Casey, Associate Chair
for ESH/Q

Approved by: **Signatures on original document** Date: 5/9/2006

C. Kao, Interim Chair
NSLS Department

FY 2006 NSLS Self – Assessment Plan

A. Purpose

As required by BNL's Integrated Assessment Program, the NSLS annually establishes performance objectives derived in part from the BNL Critical Outcomes and based on important organizational issues for the department. These performance objectives are established for each fiscal year, and are reviewed annually at the end of the fiscal year.

The purpose of the NSLS self-assessment program is to collect data that indicates accomplishment relative to the NSLS performance objectives. Through this process, it is intended to identify strengths and improvement opportunities that are important to the NSLS mission and organizational success for NSLS managers

B. Scope

This self-assessment plan addresses the performance objectives and measures that have been established for NSLS for FY 2006. The plan incorporates guidance and requirements contained in the Integrated Assessment Subject Area.

The performance objectives address all topics that are important to the success of the department and include machine performance, scientific accomplishment and safety program.

The plan includes all assessments required by the Integrated Assessment Program as well as those determined by NSLS management to be needed.

C. Responsibilities

The NSLS Chair has overall responsibility for ensuring that this Self-Assessment Plan is implemented. This responsibility for conducting self-assessments has been delegated as defined in the plan. The responsibility for management and administration of the self-assessment program has been delegated to the Associate Chair for ESH/Q. Personnel qualified to make the required determinations shall conduct assessments.

D. Development of Fiscal Year Performance Objectives

Each year, the NSLS Policy and Planning Group will establish performance objectives for the NSLS. These objectives will be based on the NSLS Long Term Plan and Laboratory–wide performance objectives. In establishing the annual performance objectives, the following issues will be considered:

- BNL annual performance objectives
- NSLS operational and business needs
- Changes in BNL Requirements
- DOE/User/Staff/External Community Views and Expectation
- Significant ESH Issues

Performance objectives established by NSLS will reflect excellence, but will also be consistent with budgetary constraints and should be achievable. The FY 2006 performance objectives and measures are listed in appendices A and B. Formal FY 2006 audits, inspections and assessments are listed in appendix C.

E. Reports

As requested by the Department Chair or other Associate Chairs, quarterly reports may be utilized to track status and trends of certain performance objectives. Each assessment activity will be documented through an appropriate report utilizing a format established by the NSLS. A summary report will be prepared annually that reviews NSLS's over-all performance. The annual report shall be approved by the Department Chair and forwarded to the Associate Director for Light Sources.

F. Corrective Actions and Evaluation

The over-all results of the self-assessment activities will be reviewed annually by the NSLS Policy and Planning Group (PPG). Any deficiencies identified in the Self-assessment will be discussed with the responsible manager and appropriate corrective actions will be established as needed. If deemed warranted by the Department Chair, corrective actions will be tracked through the NSLS Assessment Tracking System until findings are formally closed.

G. Appendices

- Appendix A - FY 2006 Performance Objectives
- Appendix B - FY 2006 Performance Measures
- Appendix C - Audits, Inspections, Assessments scheduled for FY 2006

H. References

- FY2006 BNL Critical Outcomes, Performance Objectives, and Measures
- BNL Integrated Assessment Program Management System Description
- BNL Integrated Assessment Subject Area

Appendix A

FY 2006 Performance Objectives

The National Synchrotron Light Source serves as a resource for the production of synchrotron light and as a focus for the multidisciplinary scientific community that utilizes its capabilities for their research. To succeed in our mission, we must achieve excellence in the following critical areas:

> **Science and Technology:** We will deploy our resources to provide the highest possible level of scientific performance, and continue to develop new capabilities in sources and science to extend the reach of the scientific community**.**
>
> **Operational Excellence:** We will maintain and operate our facilities at the highest level of reliability that resources and technology allow, and we will conduct all activities in a safe and environmentally sound manner.
>
> **Leadership and Management:** We will facilitate the highest quality science through the use of best management practices; and we will strive to ensure a high quality working environment for our users and staff.

Annually, performance objectives derived from these critical areas are established to provide focus and direction for the fiscal year. The performance objectives for fiscal year 2006 are as follows:

Objective 1- Develop a five year strategic plan for operation and research at the NSLS

FY 2006 Targets:

- Complete plan by August 1, 2006
- Ensure active participation of staff, users and SAC in the development of the plan.

Objective 2 -Maintain interest and awareness of NSLS accelerator and beam line research and provide high priority to improving communication with NSLS stakeholders regarding NSLS accomplishments.

FY 2006 Targets:

- Improve communication of accelerator improvements
- Communicate strategic plan

Goal 3 – Provide high priority in the allocation of resources to upgrade existing beam and establish new beam lines. In particular we will seek to improve:

- **Support to beam line activities**
- **Beam line controls**
- **Beam line detectors**
- **Photon fluence and brightness delivered to experiments**

FY 2006 Targets:

- Complete upgrade for X-25
- Continue upgrade for X-9
- Continue X13A endstation
- Complete X13B endstation, X18B quick-EAXFS and X21 hoist
- Conduct studies to determine optimal beam line performance
- Establish a D&D plan for X-5

Objective 4 – Maintain the injector systems and storage rings in a manner to ensure continued high reliability.

FY 2006 targets:

- Maintain 95% reliability of the storage rings
- Prepare report identifying critical vulnerabilities over the next 10 years of operation
- Establish a review group for examining the 10 year vulnerability list to provide comment on plan
- Establish a risk management plan for machine operations:
  - Evaluate the current SPS equipment pool and determine that the inventory is properly aligned with the requirements of NSLS Operations
  - Establish a process going forward for periodic review and updating of the SPS equipment inventory.
  - Provide guidance for risk assessment
- Develop an upgrade plan to ensure continuing reliability of the X-17 cryogenic system
- Continue study group with Operations and Accelerator Division personnel and complete evaluation of factors important to ring stability
- Continue to improve the NSLS injection system performance and reliability
- Continue the NSLS klystron update and acquisition program
- Investigate and improve the NSLS injection beam loss, specially the beam loss in the booster to X-ray ring extraction and transport line

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Objective 5: Establish the Source Development Lab as an independently funded facility which continues to advance the exciting R&D programs.

FY 2006 targets:

- Secure ONR funding for continued FEL development
- Complete the VISA undulator design and installation
- Characterize the terahertz source and use it to conduct nonlinear material science experiments in collaboration with BNL and external researchers
- Consider new source opportunities at the SDL such as ultrafast electron diffraction

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Objective 6 - Ensure operational excellence in ESH and waste management programs.

FY 2006 Targets[1]:

- Evaluate potential for lead exposure at the NSLS and revise policies and practices as needed
- Complete OHSAS 18001 program development and successfully pass registration audit
- Prepare for DOE ISM assessment scheduled for 1st quarter CY 07
- Complete second round of worker qualification program upgrades
- Ensure that hazardous equipment identification and practices are adequate and are maintained going forward for existing and new equipment
- Fully implement NRTL inspection requirements for existing equipment and ensure implementation of NRTL requirements for purchased equipment.
- Review training program requirements for staff and users and implementation rates
- Complete SAD and ASE upgrade for NSLS
- Examine implications of the new Part 851 to NSLS ESH and operations programs and determine the correct course of action
- Review the issues associated with the ALS beam line shielding configuration problems and determine if the NSLS program requires changes
- Continue evaluation of synthetic oils for application in vacuum pumps
- Evaluate waste generation associated with maintenance of cooling water systems and determine if alternate processes or materials could reduce current waste streams
- Evaluate if alternative refrigerants are available for the cooling water chillers currently using R-22 Freon
- Submit 2 proposals for pollution prevention projects:
    - Replacement of RF ignitrons in an effort to reduce mercury inventory at the NSLS
    - Purchase of a aerosol can popper as a means to reduce the volume of hazardous waste disposed of annually at the NSLS

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[1] The implementation plan for addressing these targets can be found in the FY 06 ESH Improvement Plan.

Objective 7: Define and implement a program to improve beam line productivity, management and operation of beam lines.

FY 2006 Targets:

- Continue to implement improvements to PASS system in order to accommodate various work requests of users (e.g., Safety Approval Form "envelopes," Contributing Users allocations).
- Explore options for streamlining collection of statistics and determining statistics most useful to user community
- Review procedures to identify potential areas to improve speed of user access.
- Expand on "quality-of-life" opportunities provided to user community, particularly foreign nationals and others staying on-site for longer periods of time.
- Establish, conduct, and evaluate regularly user surveys, not just end-of-experiment surveys.
- Provide mechanism for yearly updating of the Beamline Quality & Staffing Metrics.
- Finalize MOUs with all PRTs
- Improve productivity at beam lines in particular with low publication rates
- Establish a world-class contributing user program
    - Initiate the Contributing User Programs on the NSLS Facility Beamlines. This includes a preliminary staff review of CU Proposals, review of the proposals by the NSLS SAC, signing of requisite MOUs and Agreements, and incorporation of the CU Program in PASS.
    - Oversee implementation of the CU Programs and establish ways to track progress.

Objective 8: – Investigate and pursue where feasible new programmatic areas for the beam lines and accelerator staff which enhance the production and use of synchrotron radiation.

FY 2006 Targets:

- Explore means to build closer contacts with CFN
    - Ensure the success of major joint CFN-NSLS projects
        - LEEM-PEEM Facility
        - X9 microSAXS Facility
    - Other CFN-NSLS synergistic activities
        - Under a Lucent-CFN agreement, the Lucent e-beam writer is being used to fabricate x-ray kino-form lens and refractive lens arrays.
        - Develop a joint CFN-NSLS nanomagnetism program on beamlines U4B and X13A

        - Explore the possibility of doing diffraction from a single carbon nanotube
- Evaluate and submit funding proposals for new programmatic areas:
  Potential candidates include:
    - BES mid-scale instrumentation proposals
    - BES Energy related research program, including solar, hydrogen and nuclear energy
    - Protein micro-diffraction at X-5
    - DOE GTL program – high throughput protein characterization
    - NIH Imaging program
- Explore new ways of attracting new university research groups:
    - Pilot a program in which university researchers use multiple beamlines. An HBCU consortium, headed by Hamilton College, approached the BNL Diversity Office regarding such a program.
    - Explore potential ways in which existing PRTs can be enhanced by adding new members. One possibility is to extend the CU Program to PRT Beamlines.
- Explore new ways for staff within the NSLS to collaborate on new projects

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Objective 9: - Where feasible, support continuing development of the NSLS-II project.

FY2006 targets:

- Facilitate matrixed staff assignments from the NSLS organization to the NSLS-II project where required and practical.
- Communicate any lessons learned or technical developments from the NSLS (NSLS-II project) that may have applicability to the NSLS-II project (NSLS).

Appendix B

FY 2006 Performance Measures

Performance measures are established as a tool to evaluate overall performance of the NSLS programs. In general, the performance measures are developed to measure success and trends related to the three critical areas identified in Appendix A and not necessarily directly coupled to the FY 2006 performance objectives. It is expected that successful accomplishment of the annual performance objectives will produce observable and positive change in the measures that are being tracked. However, it should also be noted that specific measures are also provided to track progress on targets authorized and funded for this year to ensure adequate management control and accountability of annual department performance objectives.

1. Excellence in Science and Technology

The performance measures in Science and Technology are established annually by the Deputy Director for Science & Technology in consultation with the Associate Laboratory Directors. The following areas are evaluated and reported annually to Lab and DOE management

- Quality of Research - a review of significant accomplishments in principal research areas
- Relevance to DOE Mission – a review of the research program relevance to the mission of the DOE
- Success in Operating Research Facilities - a review of the operating history of the NSLS during the reporting period with particular emphasis on machine reliability and down-time.
- Effectiveness and Efficiency of Research Program Management
- Response to Evaluation by DOE Program Office

2. Operational Excellence

Measures for machine and research performance are established in the Section. The NSLS assesses the excellence of its environment, safety and health performance by tracking and reviewing the following factors:

- Findings and commentary associated with all internal and external audits, inspections, and assessments (see appendix C).
- Number of RCRA, radiological, safety and health violations.
- Number of work place injuries, and in particular, the number of recordable and lost work case injuries.
- Area monitor data and radiation exposure to personnel.
- Compliance with training requirements
- Number of reportable occurrences, NCRs and RARs.
- Number of significant spills or other releases to the environment.
- Waste generation rates.
- Accomplishment and progress on specific ESH targets.

3. Leadership and Management

The NSLS will measure its effectiveness in managing performance objectives, budgets and projects by:

- A management review of progress towards the annual performance objectives listed in appendix A will be conducted by April 30 and again by September 30.
- Project performance will be reported to the responsible manager in writing on a monthly basis.
- Designated projects will be reported on a quarterly basis to the Operations Council.

- Status of budgets will be reported to responsible managers on a monthly basis. The Administrative Group will provide a summary of budget variances to the PPG on a quarterly basis.

Appendix C

Audits, Inspections, Assessments scheduled for FY 2006[2]

The following assessments and audits are planned for FY 2006 at the NSLS. It should be noted that the assessment dates are for planning purposes and are subject to revision. It should also be noted that the DOE- BHSO conducts additional assessments that may also involve the NSLS.

1. Tier 1 inspections of NSLS workplaces consistent with BNL requirements for this program will be conducted throughout the year. A summary report will be issued by 8/30/06 (Responsible Person: NSLS Tier 1 Coordinator)

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2. A review of ISM implementation will be performed jointly between the NSLS ESH staff and the BHSO NSLS Facility Representative by January 31, 2006. (Responsible Person: A. Ackerman)

3. An environmental multi-topic assessment reviewing industrial and universal waste management, process assessments and experimental safety reviews will be conducted by January 31, 2006.

4. A separate process evaluation for each NSLS activity with significant environmental aspects will be conducted during the calendar year. These reviews will be scheduled and tracked through the NSLS family assessment tracking system. (Responsible Person: NSLS Environmental Compliance Representative)

5. An assessment of X-ray and VUV storage ring performance and reliability will be prepared quarterly. (Responsible Person: Associate Chair for Operations and Engineering)

6. An internal audit of the NSLS Environmental Management/Occupational Safety and Health Management System will be conducted by 2/28/06. (Responsible Person: ESH/Q Directorate)

7. A review of the adequacy of implementation of NSLS hazardous equipment identification will be conducted by 3/15/06. (Responsible Person: NSLS ESH Specialist)

8. An IH assessment of RF and static magnetic fields will be conducted by 3/31/06. (Responsible Person: ESH/Q Directorate)

9. An assessment of Integrated Safety Management implementation will be conducted by the DOE Office of Assessment by April 30, 2006. (Responsible Person: ESH/Q Directorate)

[2] As of December 31, 2005

10. A review of implementation of NRTL requirements for procurement of new equipment will be conducted by March 1, 2006. (Responsible Person: NSLS QA Manager)

11. A review will be conducted of the NSLS personnel protective interlock systems by 6/30/06 utilizing the Interlock Self-assessment Guidance Card. (Responsible Person: NSLS Associate Head for ESH/Q)

12. A surveillance audit of the NSLS Environmental Management/Occupational Safety and Health Management System will be conducted by the NSF registrar by 6/30/06. (Responsible Person: ESH/Q Directorate)

13. An audit of electrical safety lock/out - tag/out practices will be conducted by 8/30/06. (Responsible Person: NSLS QA Manager)

14. A drill and critique of the Department local emergency plan will be conducted by 8/30/06. (Responsible Person: NSLS LEC and QA Manager)

15. A review of NSLS operations will be conducted by 8/30/06 to determine if critical vulnerabilities exist which must be addressed to ensure on-going reliability and productivity over the next 8 – 10 years. (Responsible Person: NSLS Associate Head for Operations and Engineering)

16. A review of the current SPS equipment pool will be conducted by 8/30/06 to determine that the inventory is properly aligned with the requirements of NSLS Operations (Responsible Person: NSLS Associate Head for Operations and Engineering)

17. A review of the implementation of Article 12 inspection requirements for NSLS Tanks will be performed by 8/30/06. (Responsible Person: NSLS ESH Specialist & ECR)

18. A management review of progress towards performance objectives will be conducted halfway through the year and again at the end of the year. (Responsible Person: C. Kao)

19. An ESH management review will be conducted by 9/30/06. (Responsible Person: R. Casey)